

# CEER Webinar Series

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**Dr. Lea Hildebrandt Ruiz**  
Associate Professor

**February 7, 2022**  
**4:00 – 5:00 PM CT**

<https://utexas.zoom.us/j/99559641006>

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## **PREDICTIVE, SOURCE-ORIENTED MODELING AND MEASUREMENTS TO EVALUATE COMMUNITY EXPOSURES TO AIR POLLUTANTS AND NOISE FROM UNCONVENTIONAL OIL AND GAS DEVELOPMENT**

### **ABSTRACT**

The main purpose of this webinar is to introduce a new, 3-year project led by UT Austin and funded by the Health Effects Institute – Energy. The main goal of this project is to generate a broadly applicable community model which can assess exposures to air pollutants from unconventional oil and gas development (UOGD). We will also conduct targeted field measurements on stationary and mobile platforms to evaluate and refine the model. We will use the updated model to assess community exposures on a local scale and conduct CAMx modeling to estimate exposures to primary and secondary pollutants from UOGD emissions on a regional scale. Finally, we will assess the implications of our results for the design of comprehensive future exposure and health studies.

The modeling work builds on capabilities developed at UT Austin which originally focused on modeling emission and dispersion of methane. We will expand these models by adding sources of emissions not currently included (all field development activities and flaring) and by adding a broader suite of pollutants including alkanes and alkenes, BTEX, styrene, aldehydes, PAHs, H<sub>2</sub>S, SO<sub>2</sub>, black carbon and particulate matter.

### **BIO**

Dr. Lea Hildebrandt Ruiz is Associate Professor in the McKetta Department of Chemical Engineering at the University of Texas at Austin. Her research focuses on air quality engineering and the effects of physical and chemical processing of pollutants on human exposure in indoor and outdoor environments. Current specific research interests include tropospheric chlorine chemistry, air quality impacts of oil and gas development, air quality in New Delhi, India and indoor air quality impacts of disinfection. Dr. Hildebrandt Ruiz received early career awards from NSF, ACS and AIChE. She holds a B.S. with Honors in Chemical Engineering from the California Institute of Technology and a Ph.D. from the Department of Chemical Engineering and the Department of Engineering and Public Policy from Carnegie Mellon University.

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